CAPACITY DEVELOPMENT

for technical, managerial, & financial viability of
Public Water Systems

Report to the Governor On the Effectiveness of South Carolina's Capacity Development Strategy

September 2005

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South Carolina Department of Health and Environmental Control

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Introduction

The 1996 amendments to the Federal Safe Drinking Water Act (SDWA) required that each state develop a capacity development strategy to assist public water systems in acquiring and maintaining technical, managerial and financial capacity to consistently comply with the SDWA. The South Carolina Department of Health and Environmental Control (DHEC) actually began developing the State's capacity development strategy in 1993 when the term *viability* was used instead of *capacity* (these terms will be used interchangeably in this report). As a result of this early start South Carolina was among earliest of states to submit its strategy to EPA, and was the first state to receive approval. South Carolina's strategy is maintained on DHEC's website at http://www.scdhec.gov/eqc/water/html/capacitydev.html.

Another requirement of the Federal SDWA is for each state to submit to its Governor a report outlining the efficacy of the State's capacity development strategy along with explanations of the progress made, since the program's inception, toward improving the technical, managerial and financial capacity of South Carolina's public water systems. The SDWA requires that this report be submitted to the Governor every three years beginning with the first report due on September 30 2002.

For a copy of the 2002 report go to: www.scdhec.gov/eqc/water/pubs/capdevgov02.pdf. A copy of this report can be found on DHEC's web site at: www.scdhec.gov/eqc/water/pubs/capdevgov05.pdf.

South Carolina's capacity development strategy includes several historical program initiatives that have been in place for more than 30 years, such as water quality monitoring, construction permitting and sanitary survey programs, and several new programs initiated during the last decade. The effectiveness of each of these initiatives to improve the technical, managerial and financial capacity of the State's public water systems is discussed below.

Water Quality Monitoring and Annual Fee Programs

The Annual Fee Program continues to be the most important element of South Carolina's capacity development strategy. The program has allowed DHEC to continue a very successful water quality monitoring program which had its genesis in the late 1960's. The program also provides funding for many other activities associated with the implementation of the SDWA and the state's capacity development strategy.

Until the mid 1980s, DHEC was able to conduct Federally mandated chemical and radionuclide monitoring using state appropriated funds. However, after the passage of the 1986 amendments to the Federal SDWA, water quality monitoring requirements increased dramatically. With the increasing requirements DHEC needed a substantial increase in funding to continue its monitoring services. Without such services, many of the State's small water systems could not have complied with the new monitoring requirements simply because they could not financially afford the costs of monitoring.

A voluntary monitoring fee program was approved by the State's Legislature so DHEC could continue its monitoring services. However, as monitoring requirements and the complexity of those requirements continued to increase, the fee program was revised and became mandatory in 1993. As a result, the monitoring compliance rate for chemical and radionuclide monitoring remains very high for the State's

public water systems. During Fiscal Years 2002, 2003 and 2004, the State's compliance rate for chemical monitoring averaged 98.6 percent.

DHEC staff currently collects or manages the collection and analysis of all chemical and radionuclide samples from the state's public water supply systems; however, there are challenges ahead. The current fee structure as outlined in the Environmental Protection Fee Regulation (R61-30) has been in effect for five (5) years. With rising analytical costs and increasing monitoring requirements, additional state funding or an increase in the fee schedule will be needed for the State to continue to provide the same level of monitoring services. DHEC plans to assemble a group of stakeholders in the fall of 2005 to address funding and service issues.

Construction Permitting Program

The State's construction permitting program is another historical program on which the capacity development strategy was built. The original purpose of the program was to ensure that water systems are properly designed and constructed (i.e. ensure the technical capacity of a system). However in 1993 the State's SDWA was amended to allow the department to also consider the managerial and financial capacity of a proposed (new) water system when making permit decisions. The amendments also allowed DHEC to deny a construction permit for a new system if it is feasible for the project to connect to an existing viable public water system.

The goals of the 1993 amendments are: 1) to minimize the proliferation of small water systems that would erode the resources of the funds used for water quality monitoring and, 2) to prevent the construction of any system that lacked the managerial and financial capacity to comply with the SDWA. The permitting program has been very successful in meeting these goals. Since July 1, 1997, approximately 50 percent of the construction permit applications submitted to DHEC never received a permit to construct because it was either: 1) feasible to connect to an existing water system or, 2) the applicant was unable to demonstrate technical, managerial and/or financial capacity. Prior to these new capacity development initiatives most of these projects would have received a permit to construct, thus proliferating the number of small and non-viable water systems.

Currently all new water systems permitted since 1997 are in compliance with the SDWA.

Maintaining adequate funding for this program has been a concern. To address this funding issue the State's Legislature approved a new permit fee for the drinking water construction permit program in FY 2004. The fee schedule for this program can be found in the State's Environmental Protection Fee Regulation (R.61-30).

Sanitary Survey Program

The Sanitary Survey (inspection) Program focuses on the technical and managerial capacities of existing water systems in assessing their capabilities to continually provide customers with potable and safe drinking water. DHEC has and will continue to use this program to identify those systems in most need of assistance.

Business Planning Process

Since adopting the business planning process in the 1998 revisions of the State Primary Drinking Water Regulations (SPDWR), the process is becoming more widely used by the state's public water systems. To assist water systems in developing business plans DHEC developed a guide which can be found at www.scdhec.gov/eqc/water/pubs/business.pdf.

Realizing that small water systems were in the most need of assistance in preparing their business plans, DHEC decided to set aside a portion of funds from the Drinking Water State Revolving Fund (DWSRF) to provide such assistance. In May 2000, DHEC contracted with Force & Associates, Inc. of Lexington SC

to assist small water systems in preparing business plans. A total of 115 systems were provided assistance by Force and Associates, Inc. during the five-year contract period.

The contract required that Force and Associates give priority to small systems identified as in most need of assistance, which were primarily systems that received an unsatisfactory rating on their last sanitary survey.

The structure of this program allowed its participants the opportunity to open up to evaluation in a non-threatening manner, to discuss weaknesses with someone outside of DHEC and to hear options for making necessary system upgrades prior to those weaknesses becoming compliance issues. This technical assistance program and the idea of developing a business plan to improve operations were well received by the program's participants.

Force and Associates found that fiscal management was one of the weakest areas among the State's small public water systems. While compiling the financial plans for the systems participating in the program it was noted that just over half of the "Community " water systems possessed an operating budget and very few had an adequate rate structure or asset management plan. The final report on this program can be found on DHEC's web site at: http://www.scdhec.gov/water/pubs/TAFinalReport.pdf.

DHEC has set aside additional funds from the DWSRF to help fund a DHEC technical assistance team to continue assisting small water systems and address issues raised in the report. This team consists of an accountant, an engineer and a certified water treatment and distribution system operator.

Operating Permit Program

The 1998 amendments to the SPDWR included provisions for DHEC to initiate a program to issue operating permits to the State's public water systems. One goal of this program is to conduct a systematic engineering evaluation of the source and storage capacity of each system.

Another goal of the operating permit program is to stop the cycle of systems being transferred to new owners who lack technical, managerial and financial capacity. Operating Permits are non-transferable without prior approval from DHEC. Before an operating permit can be transferred the new owner must demonstrate to DHEC how the system will be managed to ensure its long-term viability. This requirement has proven beneficial in preventing the transfer of several water systems to other entities that lack capacity. These systems were eventually either taken over by a local government or the residents installed individual well systems.

The following are examples of four systems that lacked technical, managerial and financial capacity which had been passed from one owner to another.

Community System in Chester County: Inadequate operations & maintenance of the system resulted in DHEC issuing several Notices of Violation to the system since 2003; at that time the system served 46 taps and a population of 161. Two sanitary surveys noted the tanks were leaking; the system had experienced water outages and the owner was unresponsive during the enforcement process and in addressing an emergency order issued by DHEC in 2004. No other public water system was available to make merging feasible, nor did the homeowners have any other alternative but to install private residential wells. As of June 30, 2005, no customers remain connected to the public water system, all of the residents have installed private wells. The system has been eliminated.

Community System in Richland County: Providing potable water to the residents of a small subdivision in Richland County required DHEC to coordinate with the County, the SC Budget & Control Board's Office of Local Government, the SC Public Service Commission, the Bankruptcy Court for Richland County and a commercial bank. The water system serving the subdivision began to fail due to a lack of proper maintenance compounded with its inherent design inadequacies; the users suffered through frequent water outages over the years. Some of the residents of the

subdivision installed private wells but 21users were unable financially or technically to do that; the only option was to find the funding to replace the failed water system. On Dec. 10, 2003, DHEC's Commissioner proclaimed an Imminent Health Hazard regarding this water system. After issues with the bankruptcy court and the bank were settled, a new well and distribution system were constructed with funds provided by Richland County CDBG and the Office of Local Government. The new Richland County/Pond Drive Water System is owned and operated by the Richland County Utilities Dept. and serves 21 residences and a population of 55.

Community System #1 in Lexington County: This failing, privately owned system on Lake Murray served 18 residences, a mixture of year-round and vacation homes; as the system began to fail most residents purchased bottled water for potable uses. The PSC ordered the owner to find a suitable replacement owner for the system. DHEC facilitated two neighborhood meetings to gauge the residents' interests in replacing the system. After the second meeting, SRF funding was secured to replace the drinking water system and also to install sewer for the residents. Lexington County will own the system until the SRF loan is satisfied; at that time, ownership will transfer to Town of Chapin, the current operator of the water distribution and sewer collection systems.

Community System #2 in Lexington County: This system was inventoried by DHEC and the PSC as a "State Water System" having 14 taps; in 2003 it was discovered the correct number of taps was 37. The system has a history of non-compliance with regulations governing permitting and operations and maintenance of a water system. DHEC explored several options to bring public water to these residents. Two (2) new residential developments adjacent to this neighborhood will have water service by the Lexington County Joint Municipal Water & Sewer Commission (LCJMWSC). DHEC facilitated a neighborhood meeting between LCJMWSC and the residents to offer connecting the entire system to those new lines as an option for potable water service. To bring water into this area would have taken about one year, but serious water outages and risks of contamination were increasing each day so the majority of residents installed private wells soon after the meeting. Although no one is apparently operating the system, about 12 houses are still connected to it. It is expected those remaining residences will either install private wells or connect to the LCJMWSC system. DHEC will continue to take legal action against the owner of the system.

Each operating permit has the universal special condition requiring a business plan to be submitted to DHEC should the system ever receive an *unsatisfactory* sanitary survey rating, along with system specific special conditions addressing any needed upgrades or capacity problems. This condition has expedited the return to compliance for a number of systems, especially those systems that participated in the small systems technical assistance program mentioned above.

Encourage and Facilitate the Consolidation or Regionalization of Public Water Systems

The cost of operating water systems has increased dramatically over the past several years. Although the cost for small systems has been buffered to some extent with the annual drinking water fee program, other costs (construction cost for replacing aging infrastructure, energy cost, etc.) continue to rise making it difficult for small systems to remain viable.

Connecting to nearby viable water systems is the only permanent solution for most non-viable water systems. However, if they can't afford to adequately operate the system it is unlikely that they have the funds to consolidate with another water system. Usually a viable water system is not willing to extend water lines at no cost to a failing system. Most of the time the viable system is waiting on someone to provide a grant to make the connection.

In 2003 the State Revolving Loan Fund (SRF) program began offering a special incentive interest rate of 1% to encourage viable water systems to assume ownership and operation of non-viable water systems. Although this is a very low interest rate additional grant money is usually needed to make the project financially feasible. The problem is that grant funds are scarce and there are a lot of systems competing for them.

Local Planning and Coordination between State and Local Governments

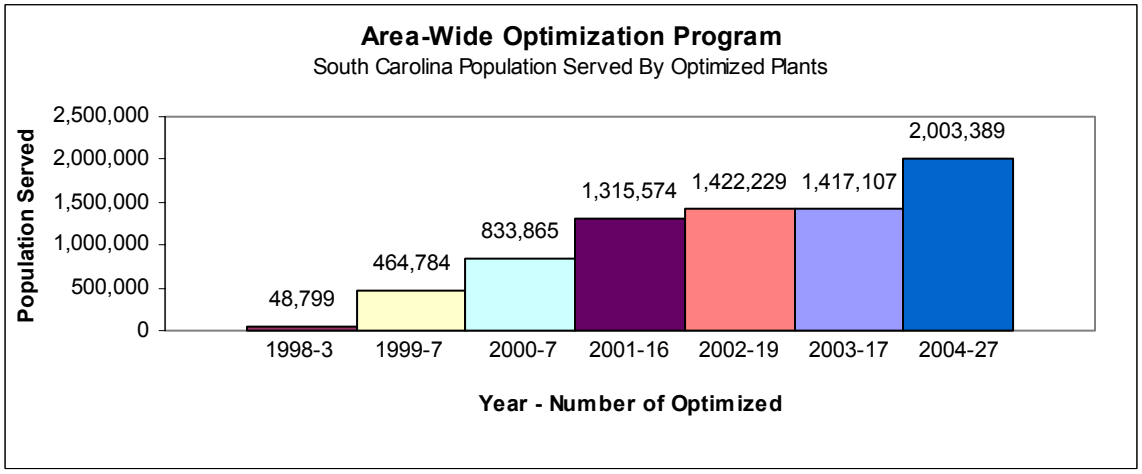
DHEC with the help of the Budget and Control Board's Office of Local Government and several local governmental agencies have resolved problems on a system-by-system basis. However, the approach to resolving problems on a system-by-system basis is very time consuming. Comprehensive regional planning should be taken by local governments throughout the state to evaluate the consolidation of technical, administrative, and maintenance services, and where feasible, connecting water systems to take advantage of the economies of scale. The Section 208 Water Management Plan initiated as part of the Clean Water Act could be used as a model for this planning process.

Applications for proposed new systems and extensions from existing water systems are reviewed to make sure they do not encroach on another system's service territory without receiving permission from that system. To aid in this review DHEC has attempted to develop a state-wide map of service territories for all municipal, county and water districts, water authorities and non-profit corporations established under Title 33, Chapter 36 of the Code of Laws of South Carolina. Unfortunately this mapping initiative has progressed slower than expected. Approximately one-half of the systems have not responded to our requests for data. However, since initiating this mapping effort the S.C. Department of Commerce, who is the custodian of digital sewer and water line files, and the Councils of Government have established a partnership to update these coverages, along with service areas. DHEC has agreed to supply this partnership with the current service area coverages, all hard copy maps received and a system's contact list to augment their efforts. Once these maps are completed they will be beneficial to all state and local planning authorities.

Educational Initiatives

Area Wide Optimization Program: In 1997 DHEC initiated an Area-Wide Optimization Program (AWOP) with a goal of increasing public health protection by optimizing the performance of all surface water filtration plants. This is a voluntary program that has seen increased participation by the State's public water systems. The AWOP originally focused on the removal of microbial contaminants, but has recently been expanded to include a component aimed at reducing disinfection byproducts. The goals set by this program exceed the current Drinking Water Standards of the SPDWR.

Since the inception of AWOP the number of plants meeting more stringent treatment goals has increased from 3 plants in 1998 to 27 plants in 2004. These 27 plants serve approximately 2 million people, which is about 71% of the population that receives its water from surface water plants.



To ensure the continued success of AWOP, DHEC utilizes a portion of its SRF capitalization grant to help fund the program. For more information go to: http://www.scdhec.net/water/html/awop.html.

Operator Certification Training: On March 22, 2004, DHEC contracted with the South Carolina Environmental Training Center (ETC) to administer operator certification training programs for small community and non-transient, non-community water systems serving less than 3300 persons. ETC structured the training sessions to be applicable for eligible operators in acquiring their licenses and for continuing education credits for eligible licensed operators. Participants are not charged any fees for taking these courses. The program offers regional classroom training sessions plus on-line training. The contract expires August 31, 2006.

Conclusion

Taking advantage of the economies of scale has proven successful with the annual fee and monitoring programs managed by DHEC. This concept can also help with two major issues facing small water systems which are; 1) having and maintaining an adequate asset replacement fund, and 2) obtaining and retaining certified operator, administrative, and maintenance personnel. The final report for the small systems technical assistance contract (see http://www.scdhec.gov/water/pubs/TAFinalReport.pdf) identified several areas in the State offering opportunities for consolidating or merging of systems and services. However, planning has to take place on the local level before implementing such solutions. DHEC will make facilitating the local planning process a priority as it continues to implement its Capacity Development Strategy.